



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

647.1915E

Job Sheet 181395



Part No: 647.1915E

Job Qty: 200 ea

Part Name: Support Angle



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 7/26/18

Job Tracking No:

Due Date: 9/10/18

Created By: Marie Lajeunesse

Type: Stock

Description:

Note: IPP REV:A NEW ISSUE 12-10-12 JLM VERIFIED BY:DD

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
100	Purchasing	200 pcs		9/10/18	0.00	0.00	Purchasing		AT 19/6/10
110	Packaging	200 pcs		9/10/18	0.00	0.00	Packaging2		AT 19/6/10
120	QC	200 pcs		9/10/18	0.00	0.00	QC6		21 0-89
130	Packaging	200 pcs		9/10/18	0.00	0.00	Packaging3-1		21 0-89
140	QC21-SA	200 Ea		9/10/18	0.00	0.00	QC21		21 0-89

Part Op 110 - Receive & Inspect for Damage & Mat'l Certs
Descriptions: 120 - QC6- All purchased or subcontracted products
130 - Identify as per dwg & Stock Location: _____
140 - QC21- Final Inspection - Work Order Release

P/O: 040758

AUG 16 2018

X 204 ft

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
647.1915P	Support Angle	200 ft (1 ea)	100-Purchasing	5143665

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
100-Purchasing	647.1915P	200	0	0

Part Specifications

Specifications could not be found.

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

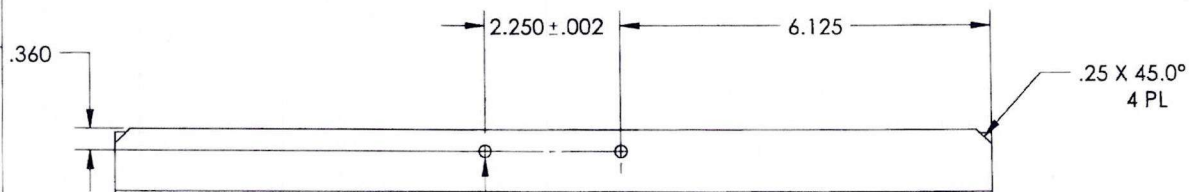
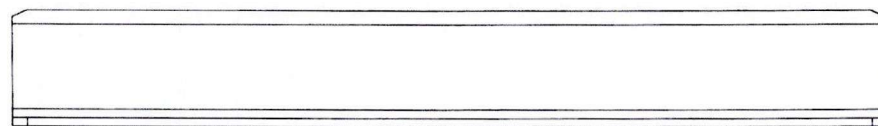
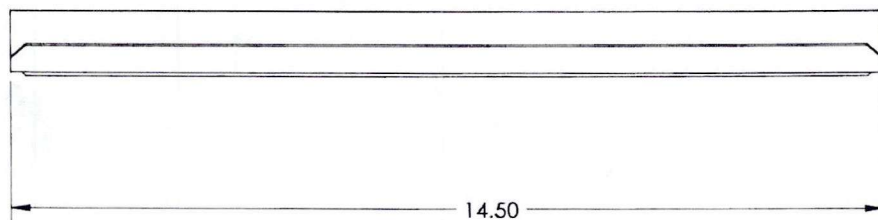
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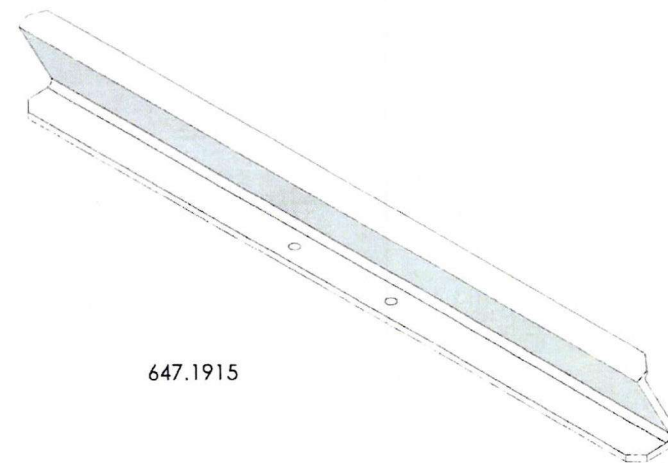
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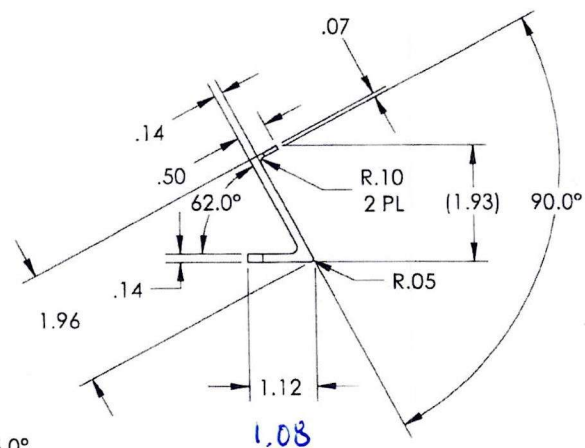
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Ø.201 THRU
2 PL



647.1915



ORIGINAL DATE JUN 04 1998		APICAL INDUSTRIES	
DRAWN BY: J. CHESTER		2608 TEMPLE HEIGHTS DR.	
1. GARDNER, J. B. BRAY		OCEANSIDE, CA. 92056-3512 (760) 724-5300	
DRAWING APPROVAL P. BRAY		BRACKETS	
CONTRACT NO.		SHEET 5 OF 5	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ± .01 ANGLES ± .5°		SHEET 5 OF 5	REV. N/C
SCALE: NONE		DWG. NO. 647.1900	DATE: 07/26/98



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER PO040758

Supplier: UNA001-VU
Universal Alloy Corporation
2871 La Mesa P.O. Box 6316
Anaheim, CA 92816-8316 USA
Phone: 714-630-7200
Fax: 714-630-7207

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

PO No: PO040758

PO Date: 8/16/18

Due Date: 12/19/18

**Purchase Order
Revision:**

Revision Date:

Ship-To Contact: Lavoie, Chantal
clavoie@dartaero.com

Via: Ground

Pymt Terms: COD

Freight Terms:

Special Comments: QUOTE # 402782



Items													
Line Item	Job	Part	Supplier Part No	Item No	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
1 ✓ AT	181395	647.1915P			Support Angle AS PER DWG 647.1915 REV. N/C	Firmed	-	12/19/18	204 ft ✓	0 ft 204 ft	204 ft 11/19/2010	\$7.17/ft	\$1,462.68
Line Item Note	EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS MUST BE WELL PACKAGE, IF NOT IT WILL BE REFUSE												
Grand Total:												\$1,462.68	

Order Notes

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Procurement Quality Clauses

- A005 RIGHT OF ENTRY
- A007 FIRST ARTICLE INSPECTION (FAI) BY SELLER, (DOCUMENTATION MAINTAINED BY SUPPLIER)
- A012 CHEMICAL AND PHYSICAL TEST REPORTS
- A016 PERSONNEL QUALIFICATION
- A017 RAW MATERIAL IDENTIFICATION (AS APPLICABLE)
- A026 CERTIFICATION OF MATERIAL CONFORMANCE
- A041 QUALITY MANAGEMENT SYSTEM
- A042 DART NOTIFICATION BY SUPPLIER
- A043 RETENTION OF QUALITY DOCUMENT
- A048 COUNTERFEIT PARTS AVOIDANCE, DETECTION, MITIGATION AND DISPOSITION PROGRAM
- A049 SUPPLIER AWARENESS

Plex 8/16/18 8:02 AM dart.lavoie.chantal

ENGINEERING CHANGE NOTICE NO. 03699		SHEET 1 OF 1	
DWG NO. 647.1900		DATE: 11/15/12	
REV: N/C		EFFECT ON DWG	
DWG TITLE: BRACKETS		☐ INC. ☒ UNING.	
APPROVED BY: <i>[Signature]</i>		EFF: NEXT ORDER	
REASON: ADDED ALTERNATE MATERIAL.		ECR: D-12-018	
TRANSACTION CODES (TC):		A-ADD C-CREATE D-DELETE R-REVISE	
APICAL INDUSTRIES, INC.			

IS

PRIMARY MATERIAL: 7075-T651 ALUMINUM PER AMS-QQ-A-250/12.
 ALTERNATE MATERIAL: 7075-T6511 ALUMINUM PER AMS-QQ-A-200/11.

SHEET 1, ZONE A2 IS:

F/N	TC	PART NUMBER	QTY	DESCRIPTION	MATERIAL	SPECIFICATION
CHANGE CATEGORY ☐ MAJOR ☒ MINOR DER REVIEW REQUIRED ☐ YES ☒ NO DOCUMENTS EFFECTED: ☐ RFMS ☐ MDL ☐ INSTALL INSTRU ☐ ICA ☐ BOM						

Shipper No. 547068-1	DIE NO. 10C14954
--------------------------------	---------------------

UNIVERSAL ALLOY CORPORATION
 2871 John Ball Way., P.O. BOX 6316, ANAHEIM, CA 92816-6316
 (714) 630-7200 (800) 331-7772 FAX (714) 630-7207

PRODUCTION LOTS **C804375 @17 PCS**

S
H DART AEROSPACE LTD
I 1270 ABERDEEN
P ZIP CODE K6A 1K7
T HAWKESBURY, ONTARIO, CN K6A 1K7
O

S
O DART AEROSPACE LTD
L 1270 ABERDEEN
D ZIP CODE K6A 1K7
T HAWKESBURY, ONTARIO, CN K6A 1K7
O

1/32

CUSTOMER'S P.O. NO. PO040758 item 1		ORDER PLACED BY CHANTAL	CUSTOMER'S PART NUMBER 647.1915-EXT 647.1915P	
TERMS NET 60	ALLOY 7075-T6	SPECIFICATION NO. AMS-QQ-A-200/11 REV. A		
SHIP VIA	DATE SHIPPED 12/21/2018	FREIGHT CHARGES PREPAID ☐ COLLECT ☒	SHIPMENT PARTIAL ☐ COMPLETE ☒	CERTIFICATIONS ATTACHED ☒ TO FOLLOW ☐

QUANTITY SHIPPED

FEET 204	PIECES X LENGTH 17 X 144.000	NET POUNDS 108	GROSS POUNDS 132	BOX 1 bundle of 1 box + -1 boxes
RECEIVED BY X		DATE	TIME	

UNIVERSAL ALLOY CORPORATION ACCEPTS NO RESPONSIBILITY FOR ERROR IN SHIPMENT IF YOU FAIL TO NOTIFY US WITHIN 3 DAYS OF RECEIPT. NO REJECTED MATERIAL WILL BE ACCEPTED FOR CREDIT OR REPLACEMENT AFTER 30 DAYS FROM DATE OF RECEIPT.



EXTRUSION MILL CERTIFICATE OF CONFORMANCE
Inspection & Test Report

Page 1 / 1

Customer	DART AEROSPACE LTD, 1270 ABERDEEN, ZIP CODE K6A 1K7		
Certificate Date	12/17/2018	Purchase Order	PO040758 /1
Material	7075	Order Number	547068
Temper	T6	Part Number	647.1915-EXT Rev. N/C / 647.1915P
Specification(s)	AMS-QQ-A-200/11 REV. A		

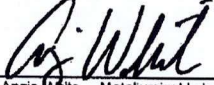
Chemical Composition Limits		Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Others	
										Each	Total
*Remainder aluminium	Min	0.0	0.0	1.20	0.0	2.10	0.18	5.10	0.0		
	Max	0.40	0.50	2.00	0.30	2.90	0.28	6.10	0.20	0.05	0.15

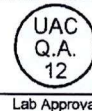
Tensile Test Results				UTS	TYS	Elongation
Lot No.	Temper	Orient.	Location	ksi	ksi	%
C804375	T6	L	Rear	89.7	81.4	12.7

Additional Information

This is to certify that material applied to the above order covered by this test report has been inspected in accordance with the specifications and drawing forming a part of this order and complies with the contract. Representative material has been tested and found to meet the applicable requirements. Further shown are the composition limits and laboratory test results. Documentation verifying conformance to these requirements is on file and available for review.

UNIVERSAL ALLOY CORPORATION
180 Lamar Haley Parkway
Canton, GA 30114


Angie White Metallurgical Lab Manager
QUALITY ASSURANCE DEPARTMENT



804375T04

COUNTRY OF MELT & MANUFACTURE - U.S.A.
Rev. 04/18/2016

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: 647.1915E
 DATE: 19/01/10

PO / BATCH NO.: P0040758/S143668

MATERIAL CERT REC'D: Yes
 QUANTITY RECEIVED: 204ft
 QUANTITY INSPECTED: 204ft
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 1.93"
 THICKNESS RECEIVED: 1.95"
 SHEET SIZE ORDERED: -
 SHEET SIZE RECEIVED: -

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	☒ N	
CORRECT FINISH	☒ Y	N	
CORROSION	Y	☒ N	
CORRECT GRAIN DIRECTION	☒ Y	N	
CORRECT MATERIAL PER M-DRAWING	☒ Y	N	AMS-QQ-A-200/11 ☒ acceptable per email
CORRECT THICKNESS	☒ Y	N	
PHOTO REQUIRED	Y	☒ N	
CORRECT REF # TO LINK CERT	☒ Y	N	P0040758
CORRECT MATERIAL IDENTIFICATION	☒ Y	N	
CORRECT M# ON THE MATERIAL	☒ Y	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	☒ N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	☒ N	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION		ENGINEERING SIGNOFF (if required)	
INSPECTED BY: <u>DAS 61</u> DATE: <u>19/01/10</u>	SIGNED OFF BY: _____ DATE: _____		

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

MATERIAL RECEIPT INSPECTION FORM

INSTRUCTIONS FOR INSPECTING BAR, TUBING, ROUND, & SHEET STOCK

- 1- VERIFY STOCK TO DART PURCHASE ORDER REQUIREMENTS
- 2- MEASURE ALL DIMENSIONS FOR EACH PURCHASED STOCK
 - a. WIDTH, THICKNESS, DIAMETER, WALL THICKNESS & LENGTH
- 3- VERIFY CONDITION OF MATERIAL i.e. DAMAGED, CORRODED, etc.
- 4- VERIFY THAT SUPPLIER HAS A NUMBER (HEAT #) ON ITS RECEIVING REPORT TO LINK TO MATERIAL CERTS
- 5- VERIFY MATERIAL CERTS ARE CORRECT TO THE DART RELEASED M-DRAWING
- 6- USING PORTABLE HARDNESS TESTER VERIFY HARDNESS OF THE MATERIAL TO THE DRAWING & RECORD
note Aluminum material only

INSTRUCTIONS FOR INSPECTING SKIDTUBE & STEP EXTRUSION

- 1- VERIFY TO DART SUPPLIED DRAWING
 - 2- SAMPLE INSPECT MATERIAL IN BUNDLE TO ENSURE MATERIAL CAN BE RECEIVED INTO DART
 - 3- USING PORTABLE HARDNESS TESTER VERIFY HARDNESS OF THE MATERIAL TO THE DRAWING
 - 4- VERIFY THAT MATERIAL CERTS MATCH TO WHATS CALLED UP ON THE DART DRAWING
- AFTER MATERIAL PASSES INSPECTION**
- 5- HAVE DART EMPLOYEES START STOCKING MATERIAL BUT REQUEST MIN 20pcs FOR FULL INSPECTION
 - 6- INSPECT ALL DIMS AS PER DRAWING REQUIREMENTS

INSTRUCTIONS FOR INSPECTING CROSS TUBE MATERIAL

- 1- VERIFY MATERIAL CERTS MATCH THE REQUIREMENTS ON THE DART DRAWINGS
- 2- INSPECT MIN. HALF THE BATCH OF EXTRUSION RECEIVED INTO DART
- 3- INSPECT MATERIAL AS PER THE EXTRUSION REPORT
 - a. WALL THICKNESS USING ULTRA-SONIC IN 4 LOCATIONS
 - b. OUTSIDE DIAMETER HIGHEST/LOWEST BOTH ENDS
 - c. INSIDE DIAMETER HIGHEST/LOWEST BOTH ENDS
 - d. STRAIGHTNESS @ CENTER OVER 12" SPAN
 - e. WALL THICKNESS USING TUBE MICROMETER HIGHEST/LOWEST BOTH ENDS
- 4- IDENTIFY EACH TUBE IN SEQUENCE OF INSPECTING (TUBE 1, TUBE2.....) AND W/O# AND PO#
- 5- RECORD ALL FINDINGS ON EXTRUSION REPORT

IF ANY QUESTIONS PLEASE SEE QC COORDINATOR BEFORE GOING FURTHER

 Reply all |   Delete Junk |  

FW: mat'l spec's

PD

Patrick Duval

Thu 1/10, 11:00 AM

Andrew Tollis 

  Reply all | 

Inbox

FYI

From: Pablo Bravo <pbravo@dartaero.com>

Sent: Wednesday, November 07, 2018 3:36 PM

To: Chantal Lavoie <clavoie@dartaero.com>

Cc: Linda Lacelle <llacelle@dartaero.com>; Patrick Duval <pduval@dartaero.com>; Robert Aboud <raboud@dartaero.com>

Subject: RE: mat'l spec's

Chantal,

You can use the 200/11.

PABLO BRAVO

Director of Engineering – San Diego

DART AEROSPACE

T 1 760 724-5300 > 106

O 1 760 509-1606

F 1 760 509-1562

1 800 556- 4166

www.dartaerospace.com

🔄 Reply all | ▼ 🗑 Delete Junk | ▼ ...

To: Pablo Bravo <pbravo@dartaero.com>

Cc: Linda Lacelle <llacelle@dartaero.com>; Patrick Duval <pduval@dartaero.com>; Robert Aboud <raboud@dartaero.com>

Subject: mat'l spec's

Good morning Pablo,

Will need your help on the following dwg. I have place an order for 647.3915 on the dwg it's asking for AMS-QQ-A-250/12 but rec'd AMS-QQ-A-200/11.

Please advise if this would be acceptable.

Thanks

Chantal

Chantal Lavoie

Purchasing Coordinator

DART AEROSPACE

T 1 613 632-5200

F 1 613 632-1053

E clavoie@dartaero.com

1 800 556- 4166

www.dartaerospace.com

